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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,120	02/24/2006	Troy Blagden	AUIT0101PUSA	2977
22045	7590	08/15/2007	EXAMINER LIVEDALEN, BRIAN J	
BROOKS KUSHMAN P.C. 1000 TOWN CENTER TWENTY-SECOND FLOOR SOUTHFIELD, MI 48075			ART UNIT 2878	PAPER NUMBER PAPER
		MAIL DATE 08/15/2007	DELIVERY MODE PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

ES

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/595,120	BLAGDEN, TROY	
	<b>Examiner</b> Brian J. Livedalen	<b>Art Unit</b> 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-22 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 24 February 2006 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date: _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>6/20/2006</u>	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____

## **DETAILED ACTION**

### ***Drawings***

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because labels are hand-written. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

### ***Claim Objections***

Claim 1 is objected to because of the following informalities: A parenthesis ")" is incorrectly inserted in line 2. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 10, and 12-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Roberts (3009571).

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In regard to claim 1, Roberts discloses (fig. 1) a sorting method including the steps of: forming an at least part annular flow of particulate material by axially flowing said particulate material over a body member (16) having a substantially conical flow surface (see fig. 2) past which said material may pass (column 1, line 67 – column 2, line 18); operating a detector (68) substantially centered within said annular flow downstream of said body member and selected to apply a sorting criterion on the particles in said flow; and operating sorting means (118) responsive to said detector to sort particles in said flow according to said criterion (column 3, line 72 – column 4, line 18; column 4, line 66 – column 5, line 35).

In regard to claim 2, Roberts discloses (fig. 1) a sorting apparatus including: a body member (16) having a substantially conical surface (see fig. 2) bounded by an edge; a supply of a particulate material to said flow surface, said supply being selected whereby said particulate material axially passes said edge forming an at least part annular flow (column 1, line 67 – column 2, line 18); a detector (68) substantially centered within said annular flow downstream of said body member and selected to apply a sorting criterion on the particles in said flow; and sorting means (118) responsive to said detector to sort particles in said flow according to said criterion (column 3, line 72 – column 4, line 18; column 4, line 66 – column 5, line 35).

In regard to claim 3, Roberts discloses (fig. 1) a sorting apparatus wherein said particles are formed into an annular flow (column 1, lines 38-41).

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In regard to claim 4, Roberts discloses (fig. 1) a sorting apparatus wherein said particulate flow passes the edge of the body member to enter a detection area downstream of the body member and containing the detector.

In regard to claim 5, Roberts discloses (fig. 1) that the particulate flow is irradiated by an actual or effectively rotating source, and that the detector detects the intensity of the reflected or transmitted component of the radiation (column 2, lines 39-45). Note, because Roberts discloses an annular array of lights, the source is an "effectively rotating source."

In regard to claim 10, Roberts discloses (fig. 1) that the detected light is polychromatic (column 2, lines 39-45).

In regard to claim 12, Roberts discloses (fig. 1) that the detection elements are selected from photo multipliers, CCD arrays or like photoelectric sensitive measuring devices (column 3, lines 72 – column 4, line 15).

In regard to claim 13, Roberts discloses (fig. 1) that the sorting means comprises one or more rejectors responsive to said detector and adapted to impinge upon a selected particle to displace said particle from said flow (column 4, line 66 – column 5, line 35).

In regard to claim 14, Roberts discloses (fig. 1) that the one or more rejectors each comprise means to generate an air blast which rejects a detected particle from the particulate flow in response to a signal generated in response to detection by said detector (column 4, line 66 – column 5, line 35).

In regard to claim 15, Roberts discloses (fig. 1) that the rejectors comprise an annular manifold containing a single row of air valves, each valve facing approximately 90 degrees to the particulate flow, substantially parallel to the product flow and offset with a clearance gap therefrom (column 4, line 66 – column 5, line 35).

In regard to claim 16, Roberts discloses (fig. 1) that the rejectors comprise a plurality of annular manifolds each containing a single row of air valves, each valve facing approximately 90 degrees to the particulate flow, substantially parallel to the product flow and offset with a clearance gap therefrom, and wherein said air valves are aligned between the rows in the direction of said flow, whereby aligned air valves are operated sequentially to impact a selected particle sequentially (column 4, line 66 – column 5, line 35).

In regard to claims 17 and 20, Roberts discloses (fig. 1) a sorting method including: forming an at least part annular flow of material (column 1, line 67 – column 2, line 18); detecting by a detector radiation from the material in the at least part annular flow, the radiation from substantially all parts of the flow having traveled substantially the same distance from the annular flow to the detector; and operating a sorting mechanism in response to the detected radiation to sort the material in the flow (column 3, line 72 – column 4, line 18; column 4, line 66 – column 5, line 35). The apparatus of claim 20 is inherently taught by the method set forth above because the elements are necessarily included for the method to function as claimed.

In regard to claims 18 and 21, Roberts discloses that the radiation received by an optical element locked substantially centrally with respect to the at least part annular flow, and wherein the optical element directs the radiation to the detector (column 3, line 72 – column 4, line 18).

In regard to claims 19 and 22, Roberts discloses that the optical element includes a rotatable mirror (column 2, lines 55-66).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts (3009571).

In regard to claim 6, Roberts discloses (fig. 1) a light source as set forth above. Roberts fails to disclose using a monochromatic light source. However, it is well known in the art to use a monochromatic light source to measure the intensity of reflected light. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a monochromatic light source in order to more accurately detect the light intensity by eliminating wavelengths outside the band of interest.

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In regard to claim 7, Roberts discloses (fig. 1) that the reflected light is filtered (67) to remove wavelengths outside a specific group of wavelengths (column 3, lines 67-71). Roberts fails to disclose removing all other wavelengths than the required wavelength to render the detected signal monochromatic. However, it is well known in the art to only allow a single wavelength of light to be detected by a detector. It would have been obvious to one of ordinary skill in the art at the time the invention was made to only allow a monochromatic band of light in order to more accurately detect the light intensity solely from the light source.

In regard to claim 8, Roberts discloses (fig. 1) that the filtering is performed using one or more band pass optical filters that transmit only the required wavelength bands (column 3, lines 67-71).

In regard to claim 9, Roberts discloses (fig. 1) a filtering process. Roberts fails to disclose that the filtering is performed using one or more band reject optical filters that reflect only the required wavelength bands. However, it is well known in the art to interchange band pass and band reject filters. It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the band pass filter of Roberts with a band reject filter in order to configure the system as desired.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts (3009571) in view of Guenard et al. (6855901).

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In regard to claim 11, Roberts discloses an embodiment (fig. 5) using a polychromatic light source and means (205, 206, 207, 208) to spectrally resolve the light to a plurality of detection elements (201, 202). Roberts fails to disclose using a diffractive grating to resolve the light. However, Guenard teaches that a diffraction grating can be used interchangeably with multiple filters in a spectroscopic sorting apparatus (column 4, lines 15-25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a diffractive grating to resolve the light in order to more efficiently transmit each part of the spectrum to its respective detector.

### ***Conclusion***

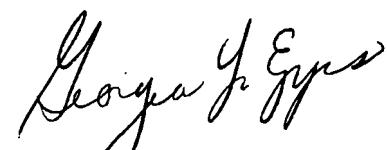
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Livedalen whose telephone number is (571) 272-2715. The examiner can normally be reached on 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

bjl



Georgia Epps  
Supervisory Patent Examiner  
Technology Center 2800